

REMARKS

In the action of April 15, 2003, the examiner rejected claims 26 and 29 under 35 U.S.C. §112, second paragraph; rejected claims 1-3, 5, 11-19 and 21 under 35 U.S.C. §102 as anticipated by Sasse; and rejected claims 27 and 28 under 35 U.S.C. §102 as anticipated by Jeffries. The examiner further indicated that claims 4-10 contain allowable subject matter, and that claims 22-25 are allowed.

Applicants' claims include independent claims 1, 13, 18, 22 and 27. Claim 1 is directed toward a two-speed drive mechanism for a wheelchair having a particular gear arrangement. Claim 1 has been amended to clarify the gear arrangement, particularly relative to the second, lower gear ratio. The claimed arrangement involves a ring gear and a single spur gear in which the spur gear is mounted such that it orbits about an eccentric axis, engaging the ring gear in a hypocycloidal driving relationship.

This is different than the Sasse arrangement. In Sasse, when the wheelchair is in a lower gear arrangement (lower than 1:1), rotation of the hand wheel 42 drives shaft 16, to which it is fixed, on which a gear 68 is formed, which in turn drives pinion 62, and pinion 60, which in turn drives ring gear 66 located on rim 32, which is connected to the wheelchair wheel. The pinions 60 and 62 are mounted to rotate about journal pins 58. The two pinion gears are required to produce a forward movement of the wheelchair when the rim is moved in the forward direction.

Sasse thus teaches a gear train involving a ring gear, a sun gear and two intermediate mating planet (spur) gears, all of which rotate about individual fixed axes. Applicants' arrangement on the other hand involves a single spur gear which does not rotate but orbits about an eccentric axis to produce a hypocycloidal driving action between the spur gear and the ring gear. Applicant's claimed gear arrangement has several advantages over the Sasse arrangement, including improved braking, hill-holding capability and shifting. Hence, claim 7 is patentable over the references, including particularly Sasse.

Claim 13 is directed toward a multi-speed drive mechanism with a shifting mechanism which moves in a planar direction, perpendicularly toward and away from an axle for the wheel. The gear arrangements are also moved perpendicularly relative to the axle during shifting. This is quite different than Sasse, as well as the other references cited by the examiner. Sasse, for instance,

teaches a shift mechanism and a handle which move along the axle, as opposed to perpendicularly thereto. In this regard, note yoke 84 as it moves axially between Figures 3 and 4. Handle 94 also moves generally parallel to the axle (between inboard and outboard positions). Note also that the gear arrangement of Sasse moves axially (not perpendicular to the axle). Accordingly, claim 13 is patentable over the references.

Claim 18 is directed toward a multi-speed drive mechanism in which the shifting means includes two portions which are differentiated from each other in a tactile (feel) manner, one portion being associated with one gear ratio and the other portion being associated with the other gear ratio (see Figures 1 and 4, in particular elements 70 and 72). This permits the user to readily differentiate between the two gear arrangements, based on the feel of the claimed portions of the shifting lever. While the examiner has applied Sasse against claim 18, it does not appear that the shift mechanism 26 in that patent has two portions which are associated, respectively, with the two gear arrangements. The examiner is requested to point out where those two portions are to be found or described in Sasse. Claim 18 is thus patentable over the cited references.

Independent claim 27 is directed toward a quick-release wheel assembly for a wheelchair, which includes a positioning member which connects the wheel to the chassis of the wheelchair such that the wheelchair hub assembly cannot rotate relative to the wheelchair. The claimed positioning member is offset from the axle in one direction and extends into and is captured by a non-rotating portion of a receiving member on the wheelchair. Jeffries discloses a collar 144 which is fitted to an axle 38. Collar 144 includes an opening which receives a non-circular member 134 which is attached to and extends outwardly from the wheelchair frame. This arrangement of Jeffries allows some backlash rotation of the wheel relative to the chassis in operation of the wheelchair and makes it difficult to install a standard wheelchair wheel on the wheelchair. There is no teaching in Jeffries of a positioning member which is offset in one direction from the axle and which extends into and is captured by a non-rotating portion of the receiving member on the wheelchair. Hence, applicants' structure is quite different and more reliable relative to preventing relative rotation than Jeffries. Accordingly, claim 27 is patentable over the references.

In view of the above, independent claims 1, 13, 18, 22 and 27 are all allowable. Further, the claims dependent thereon are

also allowable, and such action on the part of the examiner is respectfully requested.

This is also to request a three-month extension of time. Enclosed is the required fee of \$465. The Commissioner is authorized to charge any fees or deficiencies or credits to Deposit Account 07-1900.

Respectfully submitted,
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